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AN ETHNOBOTANICAL SURVEY OF TREES AND SHRUBS IN MBALAGH - BURUKU LOCAL GOVERNMENT AREA OF BENUE STATE

AKESA, T.M., INJOALU, N.C. AND ZAKAWA, N.N.

Abstract

An Ethnobotanical survey of trees and shrubs in Mbalagh, Bukuru Local Government Area of Benue State was carried out between 2017. A total of 104 plant species were analysed and grouped based on their families with their scientific and local (Tiv) names, where the species of the family Euphorbiaceae (8) and Caesalpinoideae (8) were found to be the dominant tree species. Also, the various uses such as medicinal, food, contractions, craft and others were analysed in the study area and medicinal usage has the highest percentage with 44.8% while craft has the least with 8%. Parts used such as leaves, stem, fruits, flowers, seeds, bark and roots were also put into consideration of which leaves with 38.4% has the highest percentage usage. Descriptive statistics (Descriptive analysis) which include frequency counts and percentages were used to determine the level of usage of the identified plant species and the cultural importance index was analysed. It was concluded and established that plants, no doubts play important roles in the survival and existence of other living components of our ecosystem including man.

Key words: Ethnobotany, Demographic, Families, Tiv names, Usage, Plant parts.

1.0 INTRODUCTION

Ethno-botany is a vital approach in the study of natural resources management of an indigenous people and can be summed up in four words: the people, plants, interaction and uses (Aliyu, 2006). An ethanobotanist thus strives to document the local customs involving the practical uses of local flora for many aspects of life such as plants as medicine, food and clothing. Ethnobotanical knowledge encompasses both wild and domesticated species, and is rooted in observation, relationship, needs and traditional ways of knowing. Such knowledge evolves over time and is therefore always changing and adding new discoveries, ingenuity and methods.

Plants are categorized into herbs, shrubs and trees. A tree is a woody plant having one erect trunk at least 3 inches in diameter at a point four and half feet above the ground, a definitely formed canopy or crown of foliage, and a mature height of at least 13 feet. In contrast a shrub is characterized as a woody plant with several perennial stems that may be erect or may lay close to the ground. It will usually have a height less than 13 feet and stems no more than about 3 inches in diameter (William, 2014).The existence of plants species in any habitat is crucial to man and other components of the ecosystem as all plants are valuable for one purpose or the other (Olapade and Bakare, 1992). Our world has been so closely tied to plants that it is difficult to imagine human existence without them. In recent years, forest products especially the non-timber forest products (NTFPs) have attracted considerable global interest (Cavendish, 2001). This is due to the increasing recognition of their importance to community needs for improved rural livelihood; household food security and nutrition; employment generation and income supplements. Forests contribute in many ways to combating malnutrition and improving diet in local communities and rural households (FAO, 2000; Jimoh and Haruna, 2007). Wild plants constitute the main medicinal resources in many traditional societies. Furthermore, the problem of food insecurity looms large in developing countries as incidence of poverty is on the increase and defies any precise solution (Odebode, 2005). Millions of the world's most vulnerable - the rural poor, are facing starvation as food shortage bites hard and prices of food crops move upward every day (Smith and Edward, 2008). They reported that for the first time in history, the effect of food shortage is spreading from developing countries to the developed ones.

According to Smith and Edward (2008), about 36 countries all over the world now face food crisis. Forest foods can offer vital insurance against malnutrition or famine during times of seasonal food shortage. It is common for rural households to depend on forest foods. Women, in particular, count on these resources for supplementary nutrition, emergency foods, fuel wood for cooking, medicine, income and many other important products they need to ensure the nutritional well-being of their families (Jimoh and Haruna, 2007; Conservation Africa Foundation (CAF), 2008). Nigeria is blessed with diverse plant species; some of these plants have food value. These plant resources, if properly harnessed would ensure our food security (Isichei, 2005). However, many of these species are under threat of extinction as pressure on them increases. A threat to these plant species means a threat to the survival of the rural poor.

Olafide (2003) maintained that among the diverse valuable non-timber resources of natural forest are edible and highly nutritious medicinal fruits, seeds, leaves, twigs, nuts, bark, roots, rattans, gum, latex and dyes. Agbogidi and Okonta (2003) stated that a large proportion of rural population earn their livelihood from the collection or extraction and sales of NTFPs thereby improving the quality of life and standard of living of rural population living near forestlands. NTFPs range from being used as food or food additives (nuts), as plant materials (fibre, creepers and flowers), plant derivation (raffia bamboo rattan, cork and essential oil to animals (such as snails) and animal products (honey, silk). Medicinal plants for centuries have been exploited for the treatment of diseases and healthcare. The discovery of new disease and health targets coupled with the emergence of drug resistance has rekindled interest in medicinal plants as sources of bioactive compounds for drug discovery (Gray *et al*., 2012). Wild plant materials such as fibres, baskets, furniture, bow and arrows, dyes, paints, varnishes and glue constitute craft materials (Andel, 2000). According to (Reddy *et al*., 2008), handicrafts are items made by hand, often with the use of simple tools, and are generally artistic and/or traditional in nature. (Agbogidi, 2010) identified craft materials to include fibre, baskets, bow and arrow, dye-paints, glue, varnish, fish traps and local construction activities such as use of palm fronds or grasses for thatching of huts and the general use of sticks and poles for local activities. According to the source, rope making is also a craft and plants such as *Piliostigma thornningii*.

As plant collection continues in order to meet human needs, their sources and existence are under severe threat. Economic globalization, environmental degradation and cultural homogenization are also contributing factors. The rapid decline in biological diversity (species, ecosystems and genetic diversity) is one of the critical challenges of the 21st century. Just as it is with traditional beliefs which are rapidly eroding worldwide. There is therefore an urgent need to document the traditional knowledge on the uses of plants and also conserve their habitat premise also on the fact that, youths who are the elders of tomorrow have vague knowledge about their surrounding flora, there is need to collect and prevent their extinction in future generations.

2.0 MATERIALS AND METHODS

2.1 Study Area

The study took place in Mbalagh community in Buruku local government area of Benue State, located at latitude 7.37^0E and longitude 9.26^0N. It has an area of 1,246 Km^2 and a population of 203,721 at the 2006 census. It shares boundary with Gboko and Tarka, Local Government Areas. The language spoken by the people is Tiv. The climate is made up of two distinct seasons, wet and dry seasons. The wet season occurs between April and October and the dry seasons occur between Novembers to March. Temperature is 26 °C and relative humidity is between 88% (Agricultural Resources in Benue State Nigeria (ARB), 2005). The study area is located in the Southern guinea savanna. Characterized by relatively fewer trees, more shrubs and predominantly tall grasses, up to 2m. Some of the species here include *Danniellia oliveri, Prosopis africana, Burkia africana, Khaya senegalensis, Stereospermum kunthianum,*

Fig 1: Map of Benue showing Buruku Local Government. (Source Google map)

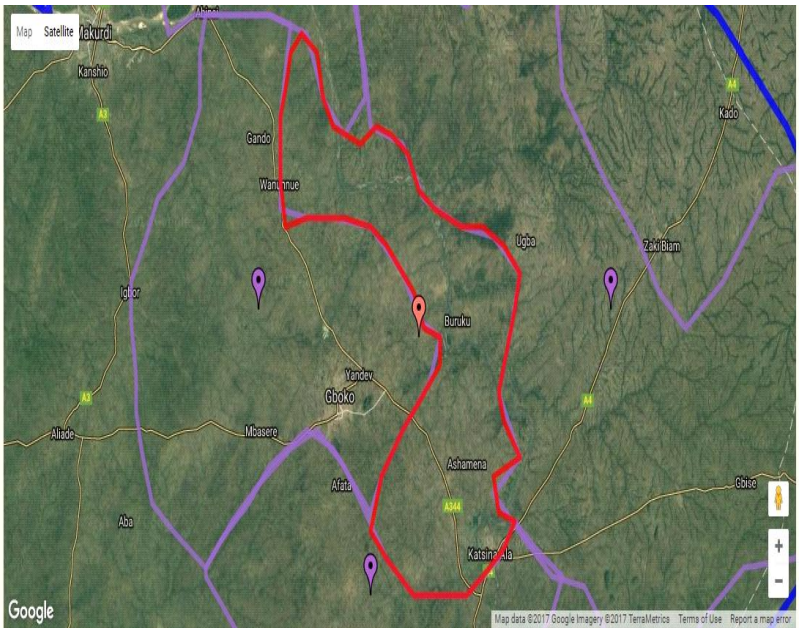

Fig 2: Map of Buruku Local Government Area showing Mbalagh. (Source: Google map)

2.2 Sampling Technique and Data Collection

A combination of random and purposive Sampling technique was employed in selecting the respondents. The population sample used for the study covers the entire community. Data for the study was obtained through the use of structured questionnaire, supplemented with observation (Dau and Elisha, 2013). A total of 85 copies of the questionnaire were administered to respondents 80 questionnaires were returned due to lack of cooperation and cultural belief among the respondents (i.e afraid of spiritual attack by the verbal interview and researchers).

2.3 Data Analysis

Descriptive statistics (descriptive analysis) which include frequency counts, percentages and chart were used to determine the level of usage of the identified plant species. To estimate the cultural significance and level of utilization of each species, Cultural Importance Index (CI), as used by Pardo-de- Santayana *et al*. (2007) was used with the following formula:

$$\mathrm{CI} = \sum_{i=1}^{i=\mathrm{NU}} UR / \mathrm{N}$$

Where

CI = Cultural Importance,

UR = Use Reported in every use-category,

i = Varying from only one to the NU,

NU= Total number of uses and

N= Number of informants in the survey.

3.0 RESULTS AND DISCUSSION

3.1 Demographic Survey

The demographic characteristics of the respondents are shown in Table 1. Majority of the respondents in this research are farmers which constitute 57.5% of the total respondents followed by the students (25%) and herbalists (17.5%). Respondents that falls within the range of 15-35 years are most represented (40%) followed by those within age range 36-55 years (32.5%) and lastly those with age above 56 years (27.5%). The male respondents were 60(75%) while the females were 20(25%). It was discovered that the male constituted the highest number of respondents (75%). However, the women have more cultural knowledge of plants around them compared to men as they were able to mention more trees and describe their uses. This may be as a result of the fact that, collection of these plants on a daily basis for soup making, firewood, food and probably traditional medicine is done by women. This finding disagrees with that of Jimoh *et al*. (2009) who noted that, the custody of information was not gender sensitive. The custody of information is age sensitive as the elderly whose age range above 56 years have versatile knowledge of plants while the youths, know very little about plants around them as they confess that, they only know the names of common plants. This is in line with the findings of (Jimoh, *et al*., 2009).

3.2 Identification and Grouping of Plant Species

A total of 104 useful plant species belonging to 43 families were identified and documented during this research as shown in Table 2. In terms of species composition, Eurphobiaceae and Caesalpinoideae families have the highest number of species (eight species each), followed by papilionoideae (7 species), Rubiaceae (6 species) Mimosoideae and Moraceae (5 species each), Anacardiaceae (4 species), six families have three species each, eight families have two species each and the remaining 22 families have one species each Table 3. The finding of this research work indicates that, members of Eurphobiaceae and Caesalpinoideae have the highest species representation. The dominance of Caesalpinoideae is consistent with the findings of Jimoh, *et al*. (2009) and Shomkegh *et al*. (2016).

3.3 Plants and Uses

The use of plants by the local people was grouped into five major categories viz: medicinal, food, craft, construction and other uses which include plants used for purpose like: spiritual worship, firewood, hunting and electric poles. Sixty seven species (44.8%) were used for medicine, 40(26.7%) for food, 12(8%) for craft, 13(8.7%) for construction and 18(12%) for other uses Table 4. The part of plants utilised in the various use categories listed above include; leaves which is the most exploited part according to the respondents 63(38.4%), followed by stem 57(34.8%), fruits 24(14.6%), seeds 11(6.7%), roots 6 (3.7%) flower 2(1.2%) and bark 11(0.6%) Table 5.The results of this study reveal that, majority of the plant species identified were used for medical purpose (44.7%) for curing one disease or the other. The herbalists particularly recognised the importance of *Stereospermum kunthianum, Hemenocardia acida, Antidesma venosum, Citrus cinensis,* and *Fluggea virosa* in traditional cure. The high utility of plants for medicine by local people was also reported by Jimoh, *et al*. (2009) and Olapade and Barake (1992), who attributed this trend to be as a result of the harsh economic conditions that push conventional medicine beyond the rural poor and the shortage of orthodox medical personnel in rural areas. This high dependence on plants for cure may also be due to easy affordability and belief in ability of plants to meet their physiological needs in a western medicine does not (Jimoh, *et al*., 2009).

The part of plants mostly used for medicinal purpose include: leaves, roots and bark. Edible plants constitute the second highest category. Some of them are collected as fruits for example: *Maranthes polyandra, Hibiscus sarbdariffa, Citrus cinensis, Mangifera indica, Detarium microcarpum, Carica papaya, Ficus sur* and *Vitex doniana*. While others are collected as leaves and seed e.g *Ricimus communis, Parkia biglobosa* and *prosopis africana*. The use of this plant as food has also been reported by Shomkegh, *et al*. (2016). In craft making, the following species *Vitellaria paradoxa, Prosopis africana,* are particularly important and are utilized for making crafts like hoes and cutlass handles, mortar, pestles etc in the study area. The use of these plants for the purpose described has also been reported by Shomkegh, *et al*. (2016). Similarly, crafts like local beds, brooms and chairs were made using *Raphia Sudanica and Elaesis guinensis*, while *Bombax costatum and Ceiba petandra* were used for making local drums because of their light nature. In the study area, some local construction activities includes, roofing of housing using trees like *Parkia biglobosa, Prosopis africana, Pterocapus osum, Alcornia cordifolia,* construction of bathrooms using *Newbouldia laevis* Agbogidi, (2010) have made similar observation.

Table 1. Demographic structures of respondents

Parameters	Specifications	Number (%)
Age	15-35	32(40)
	36-55	26(32.5)
	56 above	22(27.5)
Gender	males	60(75)
	Females	20(25)
Occupation	farmers	46(57.5)
	Students	20(25)
	Herbalist	14(17.5)

Table 2: Plants encountered, their local names (Tiv), families, uses and parts used

Local name	scientific name	Families	Part Used	Uses
Yaghlegum	*fluggea virosa*	Euphobiaceae	stem	medicinal
Ligom	*Canthium sp*	Rubiaceae	stem/leaves	medicinal
Ibyohough	*Gardenia erubscens*	Euphorbiaceae	root	medicinal
Chilakem	*Dracaena smithii*	Liliaceae	leaves	medicinal
Keendeke	*Plerocarpus santalinoids*	Papilionoideae	stem/leaves	medicinal
Bebah	*Indigofera arreta*	Papilionoideae	stem/leaves	medicinal
Kungulekuutamen	*Occimum gratisimum*	Labiatae	leaves/stem	medicinal
Ikyondotor	*Ficusphatyphylla*	Moraceae	leaves/stem	medicinal
Yiase	*Afzelia africana*	Caesalpinoideae	leaves/stem/seed	food/oil
Kuegh ukuegh	*Terminalia avisenoides*	Combretaceae	roots/leave	firewood/medicinal
Gbuugh	*Quassia undulate*	Simaroubaceae	leaves/stem	firewood/medicinal
Hiigbuug	*Trichilia emetic*	Meliceae	leaves/stem	medicinal
Kumendul	*Steculia setigera*	Sterculcaceae	leaves/stem	medicinal/firewood
Ikyura inomso	*Lophira lanceolata*	Ohnaceae	leaves/stem	medicinal
Ikyura i ukase	*Sarcocephalus latifidius*	Rubiaceae	leaves/stem	medicinal/firewood
Alomade	*Maytenus senegalensis*	Celestraceae	leaves	medicinal
Ibya I tiu	*Maranthes polyandra*	Chrysobalanceae	fruit/stem	food/firewood
Ibya I kuna	*Parinari curatelli folia*	Chrysobalanceae	stem	firewood
Amenatumba	*Stereospermum kunthianum*	Bignoniaceae	leaves	medicinal
Nune	*Parkia biglobosa*	Mimosoidae	seed/ stem	food/roofing
Gbaaye	*Prosopis africana*	Mimosoidae	seed/stem	food/firewoo
Ashwe	*Hibiscus sabdariffa*	Malvaceae	fruits/leaves	food/medicine
Hagvambenimbiriv	*Lannea sp*	Anacardiaceae	leaves	medicinal/rope
Likwagh gbande	*Hemenocardia acida*	Euphorbiaceae	stem/ leaves	medicinal
Likwagh tor	*Antidesma venosun*	Euphorbiaceae	stem	farming tools
Lwagh/kpagh	*Pterocarpus osum*	Papilionoideae	stem	furniture/roofing
Alum	*Citrus cenensis*	Rutaceae	fruits/stem/leave	food/medicine/fire
Alum uagbenge	*Citrus aurantifolia*	Rutaceae	fruits/stem/leaves	medicinal
Mango	*Mangifera indica*	Anacardiaceae	fruits/stem/leaves	food/medicine
Ishoho	*Urena lobata*	Malvaceae	sap	craft
Agalyen	*Deterium microcarpum*	Caesalpinoideae	fruits/roots/stem	food/medicine/firewood
Tsetsa	*Senna occidentalis*	Caesalpinoideae	leaves/stem	medicinal
Gyankpande	*pilostigma thonningi*	Caesalpinoideae	leaves /stem	medicinal
Kpine	*Bridelia ferruginea*	Euphorbiaceae	leaves/sap	food/craft/firewood
Makuna	*Mucuna pruriens*	Pipilionoideae	seed	medicinal

Tsamiah	*Tamarindus indica*	Caesalpinoideae	roots	medicinal
Hueza	*Grewia venusta*	Tiliaceae	Leaves	medicinal
Soho nor	*Mytragyna intermis*	Rubiaceae	fruits/branches	food/craft/roofing
Ichough	*Raphia sudanica*	Palmae	fruits	food
Mkem	*Capsicum annum*	Solannaceae	leaves	medicinal
Ndovurkpor	*Pavetta corymbosa*	Rubiaceae	leaves	medicine/food
Gor	*Cola nitida*	Sterculiaceae	fruits	food
Mzembe	*Dacryodes edulis*	Burseraceae	fruit	food
Makugh	*Strychnos spinosa*	Loganiaceae	fruit/leaves/stem	medicine
Ikyeve	Cocos nucifera	Palmae	fruits/frond	food/craft/roofing
Ayaba	*Musa sapientum*	Musaceae	fruits/leaves	food/medicinal
Msongum	*Bambusa vulgaris*	Poaceae	stem	craft/roofing
Igyedam	*Jatropha curcas*	Euphorbiaceae	seed/leaves	medicinal
Dogonyaro	*Azardiachta indica*	Meliaceae	leaves	medicine/firewood/roof
Ityuna	*Vernonia amygdalina*	Asteraceae	leaves/stem	food
Tselama	*Pericopsis laxifora*	Papilionoidae	stem	medicinal
Vangeaundega	*Commiphora kestingii*	Burseraceae	stem	electric pole/medicine
Ageegh	*Cissus populnea*	Ampelidaceae	stem/leaves	food
Ikpikeh	*Psorospermum corymbiferum*	Guttiferaceae	stem/leaves	medicinal/firewood
Saagh	*Acacia polyacantha*	Mimosoideae	root	medicinal
Abur	*Cola laurifolia*	Sterculiaceae	stem	firewood/roofing
Genger	*Bombax costatum*	Bombaceae	flower/stem	food/craft
Nihar	*piliostigma thonningii*	Caesalpinoideae	leaves	medicinal
Akinde	*Ficus thonningii*	Moraceae	leaves/stem	food/medicine
Tyembegh	*Kigelia africana*	Bignoniaceae	bark	medicinal
Mho	Syzyium guinensis	Myrtaceae	fruit/stem/whole plant	food/medicine
Jegeleje	*Moringa oleifera*	Moringaceae	flower/leaves/stem	spiritual worship
Sheabuter	*Vitellaria paradoxa*	Sapotaceae	fruit/seed/stem	food/medicinal
Ahuugh unom	*Annona senegalensis*	Annonaceae	leaves	medicinal
Ngo ahuubh	*Annona senegalensis*	Annonaceae	fruit/leaves	medicinal
Gbagbongun	*Burkea africana*	Caesalpinoideae	stem	craft
Chiha	*Daniella oliveri*	Caesalpinoideae	leaves/stem	firewood/roofing
Vile	*Elaeis guinensis*	Palmae	seed/stem/leaves	craft/palmwine/food
Jijah	*Ricimus communis*	Euphorbiaceae	seed	food
Kuur	*Borassus aethiopium*	Palmae	seed/fruits/stem	craft/food//roofing
Hulugh	*Vitex doniana*	Verbanaceae	fruit/leaves/stem	firewood/roofing/food
Vambewa	*Ceiba petandra*	Bombaceae	whole plant	spiritual worship
Shase	*Anacardium occidentale*	Anacardiaceae	fruit/seed/stem	food/firewood
Pyungwa	*Saba florida*	Apocynaceae	fruit/stem	craft/food
Jiagba	*Ptericopis laxiflora*	Papilionoideae	leaves/sap/stem	medicine/firewood

Tuur	*Ficus sur*	Moraceae	fruit/leave/stem	food/medicine
Gmalina	*Gmelina arborea*	Verbanbceae	seed/stem	roofing/medicine
Daanyam	*Syzyium guinensis*	Myrtaceae	root	medicine
Asaagh	*Dichnostachys cinerea*	Mimosoideae	leaves/stem	medicine
Azizo	*Fluggea virosa*	Euphorbiaceae	leaves	medicine
Lele	*Lawsonia inermis*	Lythraceae	leaves	craft/decoration
Gwavee	*psidium guajava*	Myrtaceae	fruit/leave/stem	food/medicine
Po	*Ficus trichopoda*	Moraceae	wax/leaves	medicine/hunting
Ngaji	*Cochlospermum planchoni*	Cochlospermaceae	leaves/stem	medicine
Konkua	*Spondia mombin*	Anacardiaceae	leaves/fruit	food/medicine
Ihyuman	*Alcornea cordifolia*	Euphorbiaceae	leaves	medicine
Kon awambe	*Pterocarpus erinaceus*	Papilionoideae	leaves	medicine
Hon	*Ficus asperifolia*	Moraceae	leaves	medicine
Gbengaji	*Pterocarpus erinaceus*	Papilionoideae	stem/leaves	medicine
Mbue	*Carica papaya*	Caricaceae	fruit/leaves	food/medicine
Nunun	*Loranthus spp*	Loranthaceae	leaves	medicine
Kpanhuur	*Vitex latifolia*	Verbanaceae	leaves	medicine
Atiever	*Corchorus olitorius*	Tiliaceae	leaves	food
Igyar	*Celosia argenta*	Amaranthaceae	leaves	food
Azurugh	*Combretum molle*	Combretaceae	leaves/stem	medicine
Hughhur	*Ageratum conyzoides*	Aseraceae	leaves	medicine
Mondo	*Colocasia esculenta*	Araceae	tuber	food
Abushi	*Justicia schimperi*	Acanthaceae	leaves	food
Lyemen	*Entada africana*	Mimosoideae	leaves/stem	medicine
Ageleshi	*Newbouldia laevis*	Bignoniaceae	leaves/stem	bathroom construction
Ahina	*Alcornea cordifolia*	Euphobiaceae	stem	roofing
Atoakpiam	*Pavetta crassipes*	Rubiaceae	stem	medicine

Table 3: Families of plants identified in Mbalagh community Buruku LGA

Family	Number of Species
Euphorbiaceae	8
Rubiaceae	6
Liliaceae	1
Papilioniodeae	7
Labiateae	1
Moraceae	5
Caesalpinoideae	8
Combretaceae	2
Simaroubaceae	1
Meliaceae	3
Sterculiaceae	3
Ochnaceae	1
Celastraceae	1
Chrysobalanaceae	2
Bignoniaceae	3
Mimosoideae	5
Malvaceae	2
Anacardiaceae	4
Rutaceae	2
Palmae	3
Solanaceae	1
Burseraceae	1
Loganiaceae	1
Poaceae	1
Musaceae	1
Asteraceae	2
Ampelidaceae	1
Guttiferaceae	1
Bombaceae	2
Myrtaceae	3
Moringaceae	1
Sapotaceae	2
Annonaceae	2
Verbanaceae	3
Apocynaceae	1
Lythraceae	1
Cochlospermacea	1
Caricaceae	1
Loranthaceae	1
Tiliaceae	1
Amaranthaceae	1
Acanthaceae	1

Table 4: Category of plants utilization in the study area

Uses	Number of Plants (%)
Medicine	67 (44.8%)
Food	40 (26.7%)
Craft	12 (8%)
Construction	13 (8.7%)
Others	18 (12%)

Table 5: Parts of plant used for various purposes in the study area

Uses	Number of Plants (%)
Leaves	63(38.4%)
Stem	57(34.8%)
Fruits	24(14.6%)
Roots	6(3.7%)
Flower	2(1.2%)
Seeds	11(6.7%)
Bark	11(0.6%)

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